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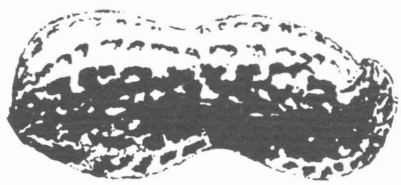
1981 Texas Peanut Disease & Nematode Control Recommendations



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1981 TEXAS PEANUT DISEASE AND NEMATODE CONTROL RECOMMENDATIONS

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Peanut growers experience disease and nematode losses in their crops each year. Disease and nematode control recommendations in this publication are based on widely accepted research and demonstration methods. The economic benefit of these recommendations relates directly to each growers' adjustment of them to fit circumstances such as soil conditions, crop sequence, water availability and climatic conditions.

SEED ROT AND SEEDLING DISEASE CONTROL

Plant high quality seed treated with a suggested seed protectant fungicide. Seedling disease is less severe when soil temperatures average 70° F. or more at a 2-inch depth at 7 a.m. Suggested seed treatment fungicides include Maneb-Captan, Botran-Captan, Captan-Maneb-Terraclor-Terrazole, Arasan, Terraclor (4)-Terrazole (1), Vitavax-Captan or Difolatan.

Planter box treatment with materials such as Captan-25 is suggested where seedling disease is prevalent. Use according to label directions.

Vitavax used on Spanish peanut seed may cause marginal burn and reduced seedling vigor. Runner peanuts have not been affected. Increased vigor usually is associated with Vitavax on runner peanuts.

FOLIAR DISEASE CONTROL

Combine chemical and cultural approaches. Rotating with other crops reduces disease organisms in the soil and makes chemical disease control more effective and profitable. Use fungicides within their individual capabilities. Control methods are listed here.

Irrigated peanuts. Begin fungicide applications 35 to 40 days after planting and continue at intervals until 10 to 21 days before harvest, depending on the fungicide used and weather conditions.

Dryland peanuts. Follow the same recommendations as for irrigated peanuts if rainfall is sufficient for continuous plant growth and disease development. Under reduced moisture conditions, begin fungicide applications at the first evidence of leafspot or when rains or dews favor disease development. Early detection of leafspot requires close observation. Continue applications at suggested intervals through periods suitable for leafspot development. (Dew formation is most consistent in the fall beginning in September, but may occur anytime.) See table 1 for chemical recommendations.

Potential Tolerance to Fungicides

Tolerance of the leafspot fungus to benomyl has been reported in some parts of the United States. Even though this has not been a problem in Texas, consider preventive steps. Alternating fungicides helps prevent tolerance.

Tolerance develops when a highly selective fungicide with a narrow spectrum of control is used extensively. One spore out of a billion may tolerate the fungicide and not be controlled. The spore's offspring would not be affected either and a new tolerant strain would develop. The fungicide permits a new race of fungus, but does not cause it.

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Application Methods

Foliar fungicides may be applied with ground or air equipment in spray or dust formulations. Any method that evenly deposits the protective fungicide over the entire leaf surface is satisfactory. Ground spray equipment is the most popular. Use the suggested amount of fungicide in 10 to 15 gallons of water per acre, depending on vine size. Use three open-cone nozzles per row spaced for optimum coverage. Use 5 gallons of water per acre when applying fungicides by air.

Growers can control foliar diseases and reduce early season costs by making the first three applications with ground equipment. If a three-nozzle arrangement is used, with one nozzle at the top and two on the sides, plug the side nozzles for the first application and use only the top one. Use two nozzles on the larger peanuts 10 to 14 days later by plugging the top one and using the two side nozzles. For the third application and throughout the growing season use all three nozzles even though this may damage some vines. Careful use of ground equipment will have little effect on yield.

Demonstrations under field conditions show that foliar fungicides applied through sprinkler irrigation systems give control equal to those applied by air and ground equipment. Bravo, Difolatan, Benlate + Manzate 200 or Dithane M-45 + oil combination and Du-Ter are labeled for use in this manner on peanuts in Texas.

Positive injection of fungicide is necessary for application through center pivot irrigation systems. Continuous agitation of fungicide-water combinations required during the hours the center pivot system circles has caused some problems with fungicide settling. This is not a problem with side roll or hand move systems.

Aerial application of foliar fungicides can provide good control. Adequate flagging insures even distribution and avoids swath widths that are too wide. Stop spraying if the wind is high enough to cause excessive drift or if spray droplets dry before they hit target plants. Stop application if temperatures are over 90° F. and relative humidity is under 45 percent. A higher visible blanket of spray mixture will appear behind the aircraft when 5 gallons of water per acre are used.

Weather Factors

The National Weather Service issues daily reports that inform peanut producers of weather conditions affecting disease development.

This information is broadcast on radio and television stations, which subscribe to the NOAA (National Oceanic and Atmospheric Administration) weather wire, and on NOAA weather radio.

POD, PEG AND STEM FUNGAL DISEASE CONTROL

Southern Blight Control

Cultural methods of controlling southern blight include:

- Bury crop residue with a mold-board plow deep enough to avoid bringing it back up during land preparation and cultivation.
- Control leafspot with fungicides to prevent leaf shed. Fallen leaves serve as a food source for the southern blight organism.
- Plant on a raised bed. Plant dryland peanuts on a slightly raised bed and irrigated peanuts on a bed approximately 4 inches high.
- Use a herbicide to prevent development of weed and grass residues that may serve as a food source for the southern blight fungus.
- Do not throw soil to peanuts during cultivation.
- Dig when mature.

Chemical control of southern blight is possible with Vitavax or PCNB (Terraclor) when used correctly. Demonstration work in Texas during the last 4 years shows that Vitavax has more ability to knock down an existing problem. However, Terraclor seems to be effective longer than Vitavax. Consider these characteristics when selecting a chemical.

Demonstration work applying Terraclor and Vitavax through sprinkler irrigation systems shows excellent results. Southern blight was controlled and yields were increased where this disease was limiting production. Both products are labeled for application through sprinkler irrigation systems in Texas. Follow label directions for application.

Positive disease identification is necessary to get good economic returns from chemical control. For example, Terraclor is effective against the southern blight fungus, but will not control Pythium pod rot fungus. Use chemical control only when southern blight has been identified as the limiting soilborne disease.

Pythium Pod and Root Rot

These diseases are controlled by:

- Avoiding excessive irrigation.
- Rotating with nonrelated crops. If possible summer fallow during rotation. Use rye or oats as a winter cover crop. Turn this under deeply with other crop residue in the spring. Plant on a raised bed.
- Improving drainage in low areas.
- Pythium pod rot is difficult to control. Success with fungicides has not been sufficient to justify recommending their use. Applications of gypsum reduce pod rot where sodium salt accumulations in soil or irrigation water are high enough to increase pod rot problem.

Rhizoctonia Pod Rot and Diplodia Collar Rot

Rotating with nonrelated crops lowers populations of these organisms in the soil. Diplodia has been less severe in plots where leafspot was controlled with fungicides and where soil temperatures were reduced by vine shading. Plant rye or oat cover crops and turn them deep under the soil long enough before planting to accomplish initial decomposition. PCNB controls Rhizoctonia when used for southern blight control.

NEMATODE CONTROL

Determine whether enough plant parasitic nematodes are present to cause damage. Send a soil sample representative of damaged areas, along with peanut pods, if available to: *Plant Nematode Detection Laboratory, Texas Agricultural Extension Service, College Station, Texas 77843.* Information sheets, soil sample bags and shipping cartons are available at county Extension offices. Apply nematicides when plant parasitic nematodes limit production. Suggested materials are listed on table 2.

AFLATOXIN (SEGREGATION III)

Aflatoxin is produced by a fungus, *Aspergillus flavus*, in the soil. Research shows some fields have a higher population of this fungus than others. If peanuts from a field have this condition consistently, consider rotating with other crops. Peanuts under drought stress are more susceptible to field infection. Avoid this condition by irrigating if this option is available. During the season, control insects or other forms of injury to pods.

When soil temperatures range from 80° to 100° F. and peanut kernel moisture drops below 25 percent, conditions for the fungus development are ideal. Hot soils reduce growth of some organisms antagonistic to *A. flavus.*

Reduced kernel moisture and high soil temperatures before harvest usually increase segregation III peanuts.

Some mold damage and aflatoxin accumulation develop during harvesting and curing. Use inverter diggers to keep pods off the soil surface while curing within the windrow. Adjust combines to prevent pod damage and transport peanuts in vented trucks and trailers to prevent heating. Force air through the truck or trailer. Dry as soon as possible according to recommended procedures.

VARIETY OR TYPE CHARACTERISTICS

Peanut varieties differ in their susceptibility to disease organisms. Although both runner and Spanish peanuts are affected by Pythium pod rot and southern blight, the runner types suffer the most damage. Give runner types extra consideration when chemical treatments are required.

Both Spanish and runner peanuts can be heavily damaged by root knot nematodes; however, the extra 30 days needed to mature the runner type magnifies their damage potential. Split applications of nematicides are more important for the runner variety.

Foliage disease organisms attack both Spanish and runner varieties. Spanish varieties are more susceptible to web blotch. Cercospora or early leafspot can devastate both types but is usually worse on Spanish varieties. With the extended growing season of runner peanuts and their partial tolerance of early leafspot, late leafspot often is the most predominant foliage disease on them. Consider all these factors when planning a spray program.

Table 1. Recommended fungicide application intervals

Suggested fungicide	Maximum suggested interval	Can be used as livestock feed?
Bravo	10 - 14*	No
Difolatan	10 - 14*	No
Manzate-200 or Dithane M-45	10*	No
Benlate + Manzate 200** or Benlate + Dithane M-45	10 - 14*	No
Topsin-M	14 - 21*	No
Super Tin***	7 - 14*	No
Du-Ter***	7 - 10*	No
Top Cop	7 - 10*	Yes
Kocide 404 S	7 - 10*	Yes
Kocide 101	7 - 10*	Yes
Sulfur Dust	7*	Yes
Sulfur Flowable	7*	Yes

* Shorter intervals are necessary when disease pressure is great and weather conditions favor infection.

** Addition of nonphytotoxic oil (60 to 70 viscosity) may increase control.

Do not mix benlate + manzate 200 + oil combinations with other materials.

*** Triphenyltinhydroxide, the active ingredient in both Super Tin and Du-Ter causes a mild foliage burn under some conditions. Irrigation application at beginning of set eliminates this burn. Do not mix these with any other spray material. Yields are not affected by slight burn.

Always read and follow labels carefully.

Chemicals suggested for:

Leafspot – Any of the above materials or approved combinations.

Rust – Bravo, Benlate + Manzate 200 + oil or Dithane M-45. (Use shorter interval.)

Web Blotch – Materials cleared for control of web blotch on peanuts include Benlate-Manzate 200-oil-combination and Bravo.

Table 2. Nematicides

Materials	Manufacturer	Recommendations
EDB - Ethylene Dibromide Soil Brom 90	Great Lakes Chemical Company	.75-1.5* gal/acre, inject 8-12* in. preplant. Do not feed vines or hay to livestock.
EDB + Chloropicrin Terrocide 72-27	Great Lakes Chemical Company	1-2* gal/acre, inject 8-12* in. preplant. Do not feed hay to livestock.
Carbofuran (10% granule) - Furadan 10 G	FMC and Mobay	20-40 lb/acre incorporated into top 3-6 in. over row. Do not feed treated peanut foliage to dairy animals or animals being finished for slaughter.
Temik (15% granule)	Union Carbide	14-20 lb/acre in 6-12 in. band preplant or at planting, incorporated 2-4 in. Do not feed hay or vines to livestock.
Temik (15% granule) split application	Union Carbide	5-7 lb/acre in 6-12 in. band at planting incorporated 2-4 in. **Plus** 10 lb/acre over row at peg with light incorporation. Do not feed hay or vines to livestock.
Dasanit 15 G	Mobay	Band 13 1/3 - 26 2/3 lb/acre (36-in. row spacing) incorporate at planting or preplanting. Do not feed hay to livestock.
Nemacur 3	Mobay	Band 2-3.3 qt/acre (36-in. row spacing) incorporate at planting. Broadcast 1-1.7 gal/acre incorporate at planting. Do not feed hay to livestock.
Nemacur 15 G	Mobay	Band 10-17 lb/acre (36-in. row spacing) incorporate at planting. Broadcast 20-33.5 lb/acre incorporate at planting. Do not feed hay to livestock.

*Demonstration work shows that maximum rates and placement depths result in excellent control of root knot nematodes.

Data collected under Texas conditions are not sufficient to allow recommendations of other nematicides marketed for peanuts.

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